



**PATENT**

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE  
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES**

**In re Application of:**

<b>Application No.:</b>	10/591,607	<b>Examiner:</b>	Gordon, Bryan P.
<b>Filing Date:</b>	July 17, 2007	<b>Art Unit:</b>	2834
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<b>For:</b>	<b>APPARATUS FOR DETERMINING AND/OR MONITORING A PROCESS VARIABLE</b>		

**APPEAL BRIEF**

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Sir:

Pursuant to 37 CFR §41.37, this is an Appeal Brief filed to the Board of Patent Appeals and Interferences appealing from the FINAL rejection of claims 8 and 10-14 dated October 24, 2008 in the above identified application.

The filing of this Appeal Brief is made within two months of the filing of the Notice of Appeal filed December 31, 2008 and is therefore timely.

The fee required by 37 C.F.R. § 1.17(c) is enclosed herewith. The Office is authorized to charge any additional fees associated with this communication to Deposit Account No. 02-0200.

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**I. REAL PARTY IN INTEREST**

The real party in interest is the assignee of record: ENDRESS + HAUSER GMBH + CO. KG, MAULBURG, GERMANY. The assignment was recorded on July 17, 2007 at Reel 019600 and Frame 0413.

**II. RELATED APPEALS AND INTERFERENCES**

There are no other appeals or interferences which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

**III. STATUS OF CLAIMS**

**A. Status of Claims in Proceeding**

Claims 1-7 have previously been cancelled per Preliminary Amendment of July 17, 2007.

Claims 8 and 10-14 are currently pending in the above-identified application.

Claim 9 has been cancelled per Response of July 25, 2008.

Claims 8 and 10-14 are rejected. Claim 8 is an independent claim with claims 10-14 dependent either directly or indirectly therefrom.

**B. Identification of Appealed Claims**

The Appellant chooses to appeal from the rejection of independent claim 8 and claims 10-14.

A copy of all the pending claims as presented in the last entered amendment dated July 25, 2008 is included in the attached Claims Appendix.

**IV. STATUS OF AMENDMENTS**

There are no outstanding amendments to the claims. The last amendment was filed on July 25, 2008 in which independent claim 8 was amended to include dependent claim 9 of which entry was acknowledged in the Office Action dated October 24, 2008.

An Amendment filed under 37 C.F.R. §1.116 is submitted as a separate paper to correct for a minor typographical error in claim 14.

**V. SUMMARY OF CLAIMED SUBJECT MATTER**

For the purposes of appeal, the rejection of claims 8 and 10-14 are appealed.

Claim 8 recites an apparatus for determining and/or monitoring a process variable of a medium having the following elements with reference to the Figures. It is noted that the Figures discussed herein refer to the Figures filed as Replacement Sheets of July 25, 2008. Claim 8 includes: a membrane (Figures 1 and 2, membrane 5), an oscillatable unit (Figures 1 and 2, oscillatable unit 1) secured to said membrane (Specification page 5, lines 13-17), a sending/receiving unit (Figure 1, sending/receiving unit 6) which excites said oscillatable unit to oscillate and which receives oscillations of said oscillatable unit (Specification page 5, lines 17-20), a control/evaluation unit (Figure 1, control/evaluation unit 10), which, on the basis of the oscillations of said oscillatable unit, monitors and/or determines the process variable (Specification page 6, lines 6-7), and where the sending/receiving unit (Figure 1, sending/receiving unit 6) includes a disk-shaped, piezoelectric element (Figures 1 and 2, piezoelectric element 15)(reference to “disk-shaped” at Specification page 3, line 26) and the disk-shaped, piezoelectric element (Figures 1 and 2, piezoelectric element 15)(reference to “disk-shaped” at Specification page 3, line 26) has two segments (Figure 2, segment 18, Specification page 3, lines 10-11), which are essentially polarized oppositely to one another (Figure 2, segment 18, Specification page 3, lines 10-11), and exactly (Specification page 3, lines 25-29) two electrodes of opposite polarity are applied to the side of said disk-shaped, piezoelectric element facing away from said membrane (Specification page 3, lines 25-29).

Claim 10 recites: the electrodes have essentially the same shape (Figures 2 and 3a, electrodes 20)(Specification page 4, lines 4-7).

Claim 11 recites: the electrodes have the shape of semicircular segments (Figure 3a, electrodes 20)(Specification page 4, lines 9-11).

Claim 12 recites: the electrodes are so structured and arranged that they annularly surround themselves (Figure 3c, electrodes 20)(Specification page 4, lines 13-18).

Claim 13 recites: the piezoelectric element is provided on the side facing said membrane at least partially with a conductive coating (Specification page 4, lines 20-21).

Claim 14 recites: the side facing said membrane is connected electrically conductively with ground (Specification page 4, lines 20-26).



**VI. GROUND OF REJECTION TO BE REVIEWED ON APPEAL**

Claims 8 and 10-14 stand rejected under 35 U.S.C. §103(a) as unpatentable over United States patent application publication 2003/0159506 A1 (*Brutschin et al.*).

## VII. ARGUMENT

### A. Overview

It is submitted that *Brutschin* fails to render the pending claims *prima facie* obvious because *Brutschin* fails to teach every feature recited by the pending claims. Furthermore, one having skill in the art would not be motivated to arrive at the claims of the present invention based upon the teachings of *Brutschin*. Accordingly, withdrawal of the rejection is respectfully requested.

### B. Pertinent Law on Obviousness

In rejecting claims under 35 U.S.C. § 103, it is incumbent upon the Examiner to establish a factual basis to support the legal conclusion of obviousness. *See In re Fine*, 837 F.2d 1071, 1073, 5 USPQ2d 1596, 1598 (Fed. Cir. 1988). In so doing, the Examiner must make the factual determinations set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 17, 148 USPQ 459, 467 (1966), viz., (1) the scope and content of the prior art; (2) the differences between the prior art and the claims at issue; and (3) the level of ordinary skill in the art.

The scope and content of the prior art, and the level of ordinary skill in the art may be evidenced by the prior art references. *In re GPAC Inc.*, 57 F.3d 1573, 1579, 35 USPQ2d 1116, 1121 (Fed. Cir. 1995); *see also In re Oelrich*, 579 F.2d 86, 91, 198 USPQ 210, 214 (CCPA 1978).

The Examiner bears the initial burden of presenting a *prima facie* case of obviousness. *In re Oetiker*, 977 F.2d, 1443, 1445, 24 USPQ2d 1443, 1444 (Fed. Cir. 1992). In order to establish a *prima facie* case of obviousness, the Examiner must show that each and every limitation of the claim is described or suggested by the prior art or would have been obvious based on the knowledge of those of ordinary skill in the art. *See Fine*, 837 F.2d at 1074, 5 USPQ2d at 1598.

Furthermore, “there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness’.... [H]owever, the analysis need not seek out precise teachings directed to the specific subject matter of

the challenged claim, for a court can take account of the inferences and creative steps that a person of ordinary skill in the art would employ.” *KSR Int’l Co. v. Teleflex Inc.*, 127 S. Ct. 1727, 1741, 82 USPQ2d 1385, 1396 (2007) (quoting *In re Kahn*, 441 F.3d 977, 988, 78 USPQ2d 1329, 1336 (Fed. Cir. 2006)). Obviousness is then determined on the basis of the evidence as a whole and the relative persuasiveness of the arguments. *See Oetiker*, 977 F.2d at 1445, 24 USPQ2d at 1444; *In re Piasecki*, 745 F.2d 1468, 1472, 223 USPQ 785, 788 (Fed. Cir. 1984).

C. *Brutschin* does not amount to a *prima facie* case of obviousness of claim 8.

*Brutschin* does not amount to *prima facie* obviousness of claim 8 because *Brutschin* differs from the claimed invention in two very important ways.

1. The claimed invention requires that the piezoelectric element of claim 8 has two segments which are essentially polarized oppositely to one another as seen in Appellant’s Figure 2 segment number 18.

In contrast to the claimed opposite polarization, *Brutschin* uses a homogeneously polarized piezoelectric element. In the discussion of the state of the art, *Brutschin* states, “the piezoelectric element itself is homogeneously polarized” (paragraph [0005]). *Brutschin* defines the object of their invention (paragraph [0007]) to improve the transmitting/receiving unit – which includes such a piezoelectric element – it can be assumed that the piezoelectric element of *Brutschin* is also homogeneously polarized. Further, the description of the invention by *Brutschin* gives no hint that the piezoelectric element should not be homogeneously polarized. This can also be taken from the description of the behavior of a piezoelectric element (paragraph [0035]).

Furthermore, the Examiner refers to *Brutschin* Figure 5a for an alleged showing of two segments polarized oppositely to one another. Paragraph [0044] of *Brutschin*, however, as relied upon by the Examiner, concerns the polarization of the electrodes but not the polarization of the piezoelectric element or of segments of the piezoelectric element. *Brutschin* is silent as to different segments of the piezoelectric element.

2. The claimed invention requires “exactly two electrodes of opposite polarity are applied to the side of said disk-shaped, piezoelectric element facing away from said membrane.”

As disclosed in Appellant’s Specification, the above claimed limitation is advantageous in that manufacturing and cost are minimal (Specification at page 3, lines 25-29).

Such an advantage is not at all predictable or obvious in view of *Brutschin*.

In rejecting claim 8, the Examiner states, “[i]t would have been obvious to one having ordinary skill in the art at the time the invention was made to have exactly two electrodes of opposite polarity, since it has been held that omission of an element and its function in a combination where the remaining elements perform the same function as before involves only routine skill in the art (Office Action at page 3).”

The Examiner’s rejection is clearly in error.

*Brutschin* demands its four electrode structure in order to minimize the influence of disturbance signals. This is clearly taught at paragraph [0046] in reference to Figure 6 which is the same embodiment as that of Figures 5a and 5b (relied upon by the Examiner):

“FIG. 6 shows a blocked diagram of the second embodiment of the apparatus according to the invention (FIG. 5a , FIG. 5b) and of the transmitting/receiving unit according to the invention. The transmission signal, which is inverted via the inverter 22, is applied to the transmitting electrode 21; the non-inverted transmission signal is applied to the transmitting electrode 20. The transmission signals which are applied to the two transmitting electrodes 20, 21 thus have the same magnitudes but have opposite mathematical signs. If a common-mode disturbance or interference  $\sigma$  occurs (as identified by the indexed disturbance in the figure), caused, for example, by means hum and/or by external vibration, a signal  $\Sigma_1 = +\Delta E + \sigma$  is tapped off on the receiving electrode 18, and a signal  $E_2 = -\Delta E + \sigma$  is tapped off on the receiving electrode 19.

Both signals are passed to the inputs of the differential amplifier 23, at whose output the signal  $E = E_1 - E_2 = +2\Delta E$  is produced, from which the common-mode disturbance or interference has been removed. Disturbances and interference which in each case act or acts in the same sense on the two electrodes 18, 19; 20, 21, which are arranged symmetrically about a point, can thus be removed in a very simple and effective manner.”

Therefore, a person skilled in the art starting from *Brutschin* would be deterred from reducing the number of electrodes to exactly two electrodes because such a change in structure would contravene the intent of *Brutschin*.

Appellant therefore asks that the rejection of claim 8 be withdrawn.

D. The Examiner has not established *prima facie* obviousness of claims 10-12.

In rejecting claims 10-12, the Examiner merely states, “Brutschin teaches the claimed invention as described above in claim 8 (Office Action at page 3).”

The Examiner has not clearly identified where in the *Brutschin* reference any of the claimed limitations from claims 10-12 are found.

Appellant therefore asks that the rejection of claims 10-12 be withdrawn.

E. The Examiner has not established *prima facie* obviousness of claim 13.

In rejecting claim 13, the Examiner states, “Brutschin teaches the said membrane at least partially with a conductive coating (paragraph 0043).”

The Examiner has not considered all of the elements of claim 13 which recites that the piezoelectric element is provided on the side facing said membrane at least partially with a conductive coating.

Furthermore, the above limitations contribute to the advantage of the running of conductors in a limited space (Specification page 3, lines 17-24).

Appellant therefore asks that the rejection of claim 13 be withdrawn.

F. The Examiner has not established *prima facie* obviousness of claim 14.

In rejecting claim 14, the Examiner concludes that *Brutschin* teaches the claimed limitations from claim 14. However, the above limitations contribute to the advantage of the running of conductors in a limited space (Specification page 3, lines 17-24). *Brutschin* paragraph [0039], as relied upon by the Examiner, does not disclose the above noted advantage.

Appellant therefore asks that the rejection of claim 14 be withdrawn.

**VIII. Conclusion**

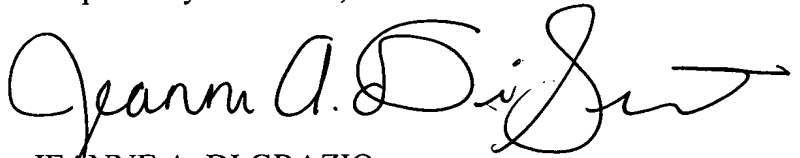
For the reasons set forth above, independent claim 8 and claims 10-14 dependent therefrom of the pending application define subject matter that is not obvious within the meaning of 35 U.S.C. § 103(a).

Reversal of the rejection of the claims, and allowance of the claims is respectfully requested.

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Respectfully submitted,

A handwritten signature in black ink, reading "Jeanne A. Di Grazio". The signature is fluid and cursive, with the first name "Jeanne" and last name "Di Grazio" clearly legible.

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**IX. CLAIMS APPENDIX**

8. Apparatus for determining and/or monitoring a process variable of a medium, comprising:

a membrane

an oscillatable unit secured to said membrane;

a sending/receiving unit, which excites said oscillatable unit to oscillate and which receives oscillations of said oscillatable unit

a control/evaluation unit, which, on the basis of the oscillations of said oscillatable unit, monitors and/or determines the process variable, wherein:

said sending/receiving unit comprises a disk-shaped, piezoelectric element;

and

said disk-shaped, piezoelectric element has two segments, which are essentially polarized oppositely to one another; and

exactly two electrodes of opposite polarity are applied to the side of said disk-shaped, piezoelectric element facing away from said membrane.

10. The apparatus as claimed in claim 8, wherein:

said electrodes have essentially the same shape.

11. The apparatus as claimed in claim 10, wherein:

said electrodes have the shape of semicircular segments.

12. The apparatus as claimed in claim 8, wherein:

said electrodes are so structured and arranged that they annularly surround themselves.

13. The apparatus as claimed in claim 8, wherein:



said piezoelectric element is provided on the side facing said membrane at least partially with a conductive coating.

14. The apparatus as claimed in claim 8, wherein:

the side facing said membrane is connected electrically conductively with ground.

**X. EVIDENCE APPENDIX**

There are no copies of evidence entered and relied upon in this appeal  
of the pending application.

**XI. RELATED PROCEEDINGS APPENDIX**

There are no related proceedings or decisions rendered by a court or the Board of Appeals in any proceeding identified in the related appeals and interferences section in the pending application.